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Heart Failure and Cardiomyopathies

INSULIN-LIKE GROWTH FACTOR-BINDING PROTEIN 7 IN HEART FAILURE PATIENTS: A NOVEL BIOMARKER OF MYOCARDIAL DIASTOLIC FUNCTION?

Poster Contributions
Hall C
Saturday, March 29, 2014, 10:00 a.m.-10:45 a.m.

Session Title: Heart Failure and Cardiomyopathies: Role of Biomarkers in Heart Failure
Abstract Category: 12. Heart Failure and Cardiomyopathies: Clinical
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Background: Insulin-like growth factor-binding protein 7 (IGFBP7) is a novel biomarker for heart failure (HF) associated with cardiac hypertrophy and vascular remodeling. We examined the association between IGFBP7 and echocardiographic abnormalities reflecting diastolic dysfunction.

Methods: 124 patients with ambulatory HF due to left ventricular (LV) systolic dysfunction and baseline detailed two-dimensional echocardiographic examinations were followed for a mean of 10 months with 882 office visits. IGFBP7 was measured serially at each office visit, and 108 patients had follow up echocardiograms. Echocardiographic parameters of diastolic dysfunction were compared at baseline and over time in subjects subdivided by IGFBP7 concentrations, determined by a previously established prognostic cut point of 117.8 ng/mL.

Results: IGFBP7 was not associated with LV systolic function. In contrast, patients with elevated baseline IGFBP7 concentrations were more likely to have parameters describing abnormal diastolic function, including higher left atrial volume index (LAVi; 32.0 mL/m2 vs 25.2 mL/m2; P = 0.03), transmitral E/A (2.25 vs 1.23; P = 0.008), E/E' (15.2 vs 10.8; P <0.001) and right ventricular systolic pressure (RVSP; 53.0 mmHg versus 43.5 mmHg; P=0.006). IGFBP7 was correlated with LAVi (ρ=0.237, P=0.008), transmitral E/A (ρ=0.304, P=0.001), E/E' (ρ=0.257, P=0.005) and RVSP (ρ=0.316, P=0.001). Furthermore, these parameters were found to be independent predictors of IGFBP7 in adjusted analysis. Among those subjects with baseline and final echocardiograms, more time spent with elevated IGFBP7 concentrations in serial measurement was associated with worsening diastolic function and increasing LAVi or RVSP. IGFBP7 concentrations were predictive of an increased risk of cardiovascular events independent of echocardiographic measures of diastolic dysfunction (P = 0.006).

Conclusions: IGFBP7 is a novel HF biomarker with robust links to the presence and severity of abnormal echocardiographic parameters of diastolic function.